

Fig. 2A

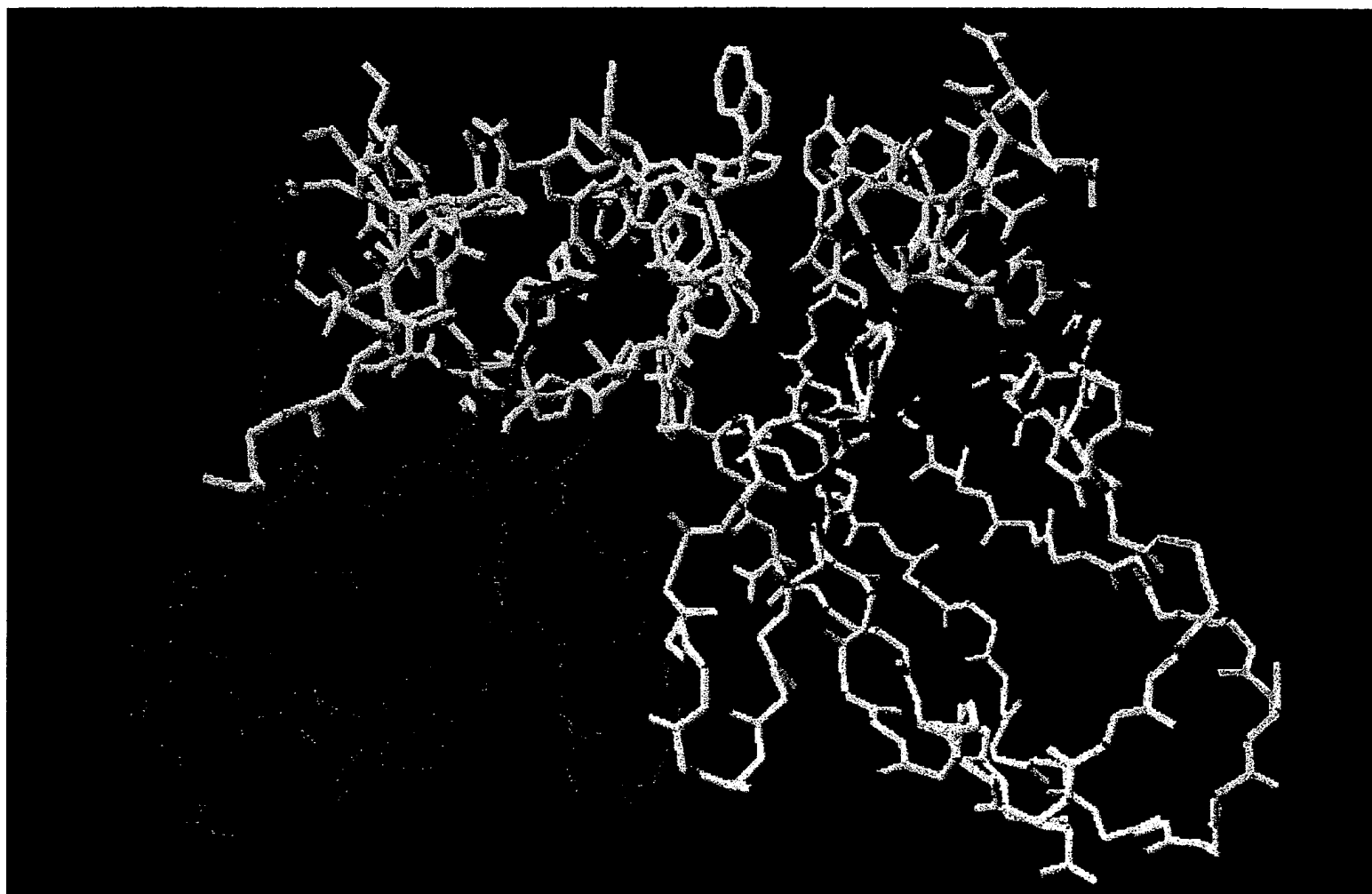


Fig. 2B

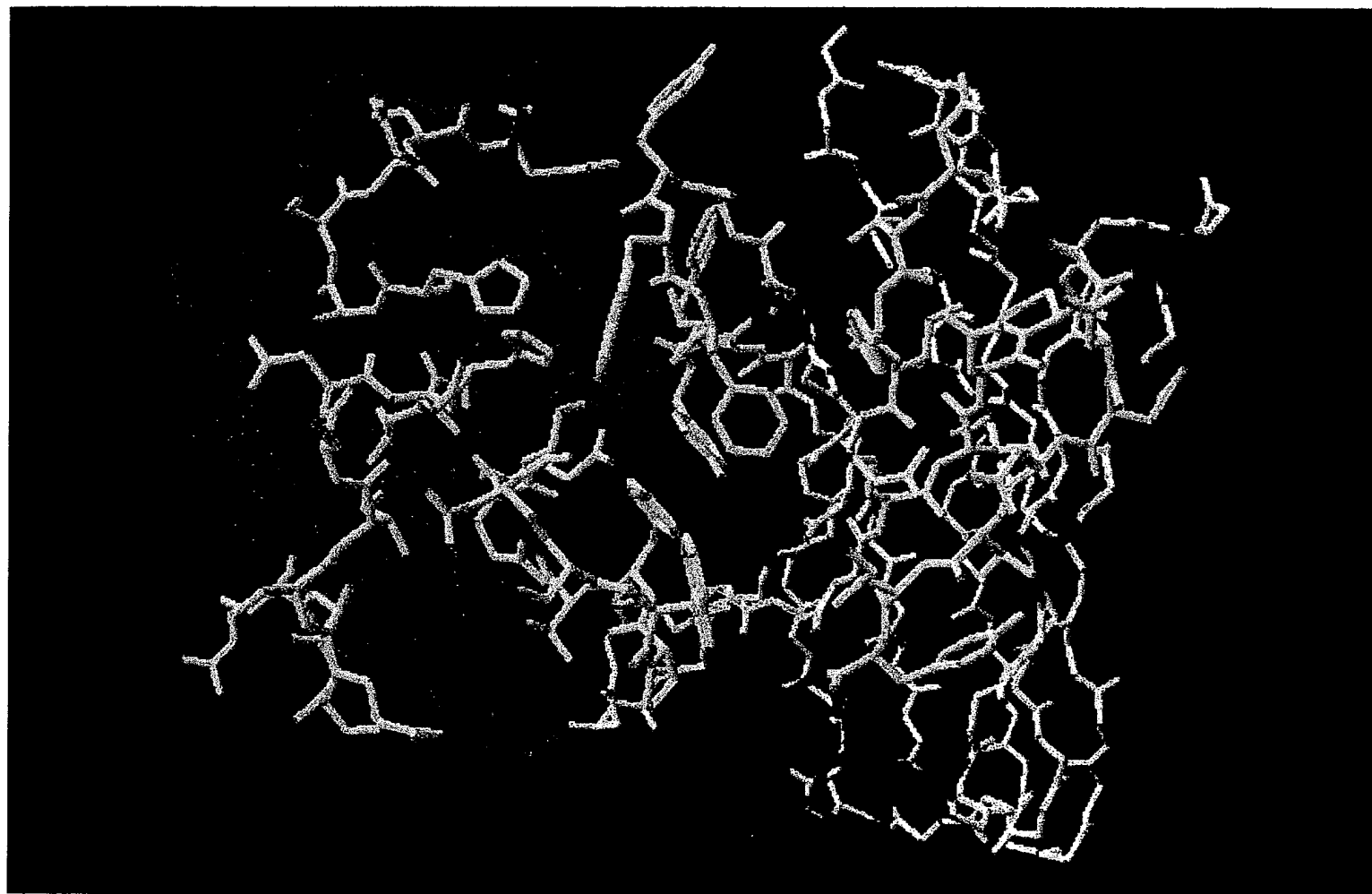
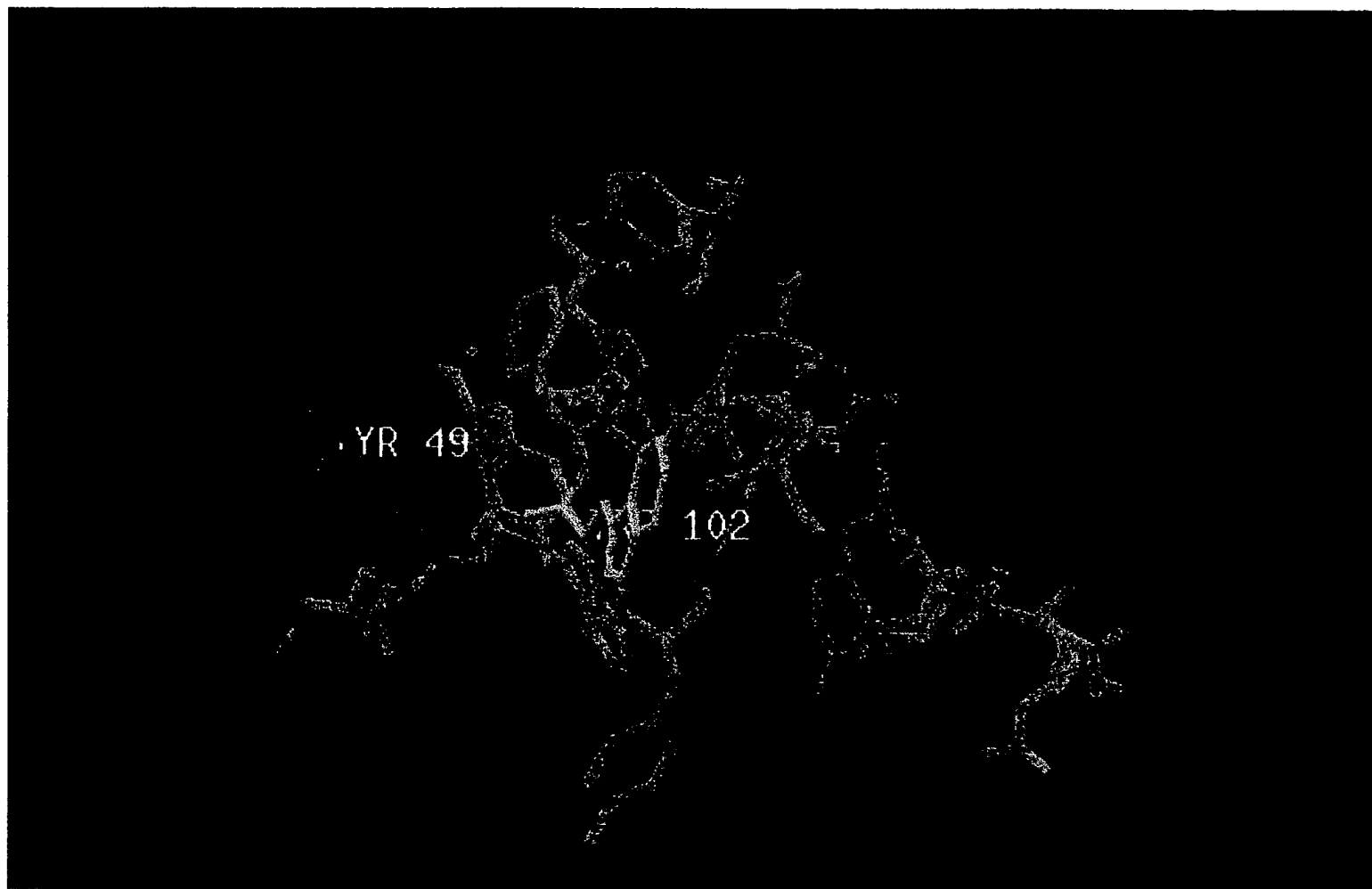


Fig. 2C



**Figure 1. Amino Acid Sequences of Murine 1A6 and Human Consensus Sequences of Heavy Chain Subgroup III (Humiii) and Light Chain  $\kappa$  Subgroup I (Hum $\kappa$ I).**

**V<sub>H</sub> Domain**

	1	11	21	31	41	
Mouse1A6	EVQLQQSGAE	LVKPGASLKL	SCTASGFNIK	DTYIHWMKQR	PEQGLEW I GR	
	** ** *	* * *	*		* * *	**

HumIII	EVQLVESGGG	LVQPGGSLRL	SCAASGFNFS	-----WVRQA	PGKGLEWVA—	
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	51 a	61	71	81 a bc	91	
Mouse1A6	<b>IDPANDNTIYD</b>	<b>PKVQGKATMT</b>	ADTSS NTAYL	QLNSLTSED	TAVY YCTT	
		** * * *	*	*		

HumIII	-----A	DSVKGRF T IS	RDDSKNTAYL	QMNSLRAED	TAVY YCTT	
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	103	111	
Mouse1A6	<b>SGYWFA</b>	<b>YWQGTLVT</b>	VSS

HumIII	-----	WGQGT	LVTVSS
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**V<sub>L</sub> Domain**

	1	11	21	31	41	51
Mouse1A6	DIVLTQSPAT	LSVTPGDSVS	LSCRASQSI	NNLHWYQKH	SESPRLLIK	<b>ASQ</b>
	**	**	***	* * *	* * * *	*

Hum $\kappa$ I	DIQMTQSPSS	LSASVGDRVT	ITC-----	-----	WYQQKP	GKAPKLLIY -- ----
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	61	71	81	91	101	
Mouse1A6	<b>SISG I PS</b>	<b>RFSGSGSGTD</b>	<b>FTLSINSVET</b>	<b>EDFGMFFCQQ</b>	<b>SNSWPYTFGG</b>	<b>GTKLEIKR</b>
	*	* * * *	* * * *		*	*

Hum $\kappa$ I	----GVPS	RFSGSGSGTD	FTLTISSLQP	EDFATYYC ----	-----	FGQ GTKVEIKR
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The CDR residues as defined by both Kabat and Chothia are shown in boldface.

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**Figure 3. Amino Acid Sequences of Murine 1A6, Humanized 1A6 (Hum19), and Human Consensus Sequences of Heavy Chain Subgroup III (Humiii) and Light Chain  $\kappa$  Subgroup I (Hum $\kappa$ I).**

## V<sub>H</sub> Domain

	1	11	21	31	41
Mouse	EVQLQQSGAE	LVKPGASLKL	SCTASGFNIK	DTYIHWMKQR	PEQGLEWIGR
	* * *	* * *	*	* * *	* * *
Hum19	EVQLVESGGG	LVQPGGSLRL	SCAASGFNIK	DTYIHWVRQA	PGKGLEWVAR
HumIII	EVQLVESGGG	LVQPGGSLRL	SCAASGFNFS	-----WVRQA	PGKGLEWVA—

	51	a	61	71	81	a bc	91
Mouse	<b>IDPANDNTIYD</b>		<b>PKVQGKATMT</b>		<b>ADTSS NTAYL</b>		<b>QL NSLTSED TAVY YCT I</b>
			** *	* .. *	*	**	*
Hum19	<b>IDPANDNTIYA</b>		<b>DSVKG RFT IS</b>		<b>SDDSKNTAYL</b>		<b>QMNSLRAED TAVY YCTA</b>
				*			*
HumIII	----- <b>A</b>		<b>DSVKG RFT IS</b>		<b>RDDSKNTAYL</b>		<b>QMNSLRAED TAVY YCTR</b>

		103	111
Mouse	<b>SGYWFA</b>	<b>YWQG</b> TLVT	VSS
Hum19	<b>SGYWFA</b>	<b>YWQG</b> TLVT	VSS
HumIII	-----	--WGTLVT	VSS

## V<sub>L</sub> Domain

	1	11	21	31	41	51
Mouse	DIVLTQSPAT LSVTPGDSVS LSCRASQ <b>SIS NNL</b> HWYQ <b>QKH</b> SESPRLLIK <b>H ASQ</b>					
	**	**	***	* * *	* *** *	*
Hum19	DIQMTQSPSS LSASVGDRVT ITCRASQ <b>SIS NNL</b> HWYQ <b>QKP</b> GKAPKLLI <b>YH ASQ</b>					
HumκI	DIQMTQSPSS LSASVGDRVT ITC----- ----- WYQ <b>QKP</b> GKAPKLLI <b>Y -- ----</b>					

Mouse                    61                    71                    81                    91                    101  
                   **SISG I PS** RFSGSGSGTD FTL**SINSVET** ED**FGMFFCQQ** **SNSWPYTFGG** GT**KLEIKR**  
                   \*                    \* \* \* \*                    \* \* \* \*                    \*                    \*  
 Hum19                    **SISGVPS** RFSGSGSGTD FTL**TISSLQP** ED**FATYYCQQ** **SNSWPYTFGQ** GT**KVEIKR**  
 HumkI                    ----**GVPS** RFSGSGSGTD FTL**TISSLQP** ED**FATYYC** ---- ----- **FGQ** GT**KVEIKR**

The CDR residues as defined by both Kabat and Chothia are shown in boldface.

**Figure 4. cDNA Sequences of Humanized scFv3 (Hum3) [SEQ ID. 2].**

The restriction sites are underlined. CCATGG NCO I SITE; GGATCC BAMH I SITE; GTTAAC HPA I SITE

CGAACCATGGGCGATATCcgatgACCCAATCTCCGtctagcCTGAGCgccAG  
TgttGGTgatCGAGTTaccattactTGCCGCGCCAGCCAATCTATCAGTAATAATCTTC  
ACTGGTATCAACAAaaaccgggtaaagctCCGaaaCTTCTTATCAAACACGCCTCTCAG  
AGCATTAGCGGCgttCCGAGCCGCTTCTCTGGCTCTGGCTCGGGCACGGACTTT  
ACCCTTaccATCAGCTCTcttcagccgGAAGACtttGCCaccTATtatTGTCAGCAGTCTAA  
TAGCTGGCCGTATACCTTCGGTcaaGGTACCAAGgtcGAGATTAAGCGCGGCGG  
TGGCGGTTCTGGTGGCggtggtagcggtaggcGGTGGATCCGGTGGCGGTGGCAGCGA  
AGTTCAACTTGTTGAGTCTGGTGGCGGTCTGGTTCAGCCGGGTGGCTCTCTGC  
GCCTGTCTTGCGCAGCAAGCGGTTTCAACATTAAGGACACCTACATCCATTGG  
atgAGGCAAGCTCCGGGTAAGGGTCTGGAGTGGGTGGCACGTATCGACCCGGC  
AAACGACAACACCATTTACGATCCGAAGGTGCAGGGCCGTTTTACTatgTCTGC  
GGACacCTCTAAGAACACCGCGTACCTTCAGATGAACTCTCTGCGTGCCGAGG  
ACACCGCCGTCTACTACTGCACGACCTCTGGCTACTGGTTTGCCTACTGGGGC  
CAGGGCACGCTTGTCACCGTCTCTTCTGGTtAaCCC

**Figure 5. Protection of HRV15 infection by mouse 1A6 scFv (Ms1) and humanized 1A6 scFv proteins (Hs3, 4, 7, 17, 18, 19 and 21).**

